

## REMARKS

### **I. Status of Claims**

Claims 1-6 and 8-11 are pending in the application, with claims 1, 8, and 9 being independent. Claim 7 has been withdrawn from consideration as being drawn to a nonelected species. Claim 2 is currently amended and claims 10 and 11 are newly added. Support for the newly added claim language can at least be found in paragraph [0038] of the application as published and in the graph of FIG. 2. Therefore, the Applicant believes that no new matter is added.

Claims 1-5, 8, and 9 stand rejected under 35 USC 102(b) as allegedly being anticipated by Kuroda et al. (US 6,352,489 B1).

Claim 6 stands rejected under 35 USC 103(a) as allegedly being unpatentable over Kuroda.

The Applicant respectfully requests reconsideration of the rejections in view of the following remarks.

### **II. Pending Claims**

Independent claims 1, 8, and 9 stand rejected under 35 USC 102(b) as allegedly being anticipated by Kuroda.

The Applicant respectfully submits that claim 1 is patentable over the cited references at least because it recites, *inter alia*, “...***a drive power demand setting module that sets a drive power demand*** required for a drive of said hybrid vehicle, ...***a lower rotation speed limit setting module that sets a lower rotation speed limit***, which represents a minimum allowable rotation speed of the internal combustion engine, corresponding to the measured vehicle speed; and ***a control module that controls the internal combustion engine, the electric power-mechanical power input output mechanism, and the motor to drive the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit*** and to drive said hybrid vehicle with a power corresponding to the set drive power demand.” (emphasis added)

The Applicant respectfully submits that claim 8 is patentable over the cited references at least because it recites, *inter alia*, “... ***a power demand setting module that sets a power demand*** required for the drive shaft; ...***a lower rotation speed limit setting module that sets a lower rotation speed limit***,

which represents a minimum allowable rotation speed of the internal combustion engine, corresponding to the measured rotation speed; and **a control module** that controls the internal combustion engine, the electric power-mechanical power input output mechanism, and the motor **to drive the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit** and to output a power corresponding to the set power demand to the drive shaft.” (emphasis added)

The Applicant respectfully submits that claim 9 is patentable over the cited references at least because it recites, *inter alia*, “...(a) **setting a drive power demand** required for a drive of said hybrid vehicle; (b) **setting a lower rotation speed limit**, which represents a minimum allowable rotation speed of the internal combustion engine, corresponding to a measured vehicle speed; and (c) controlling the internal combustion engine, the electric power-mechanical power input output mechanism, and the motor **to drive the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit** and to drive said hybrid vehicle with a power corresponding to the set drive power demand.” (emphasis added)

In certain embodiments of the present invention, a drive power demand setting module sets a drive power demand required for a drive of a hybrid vehicle and a lower rotation speed limit setting module sets a lower rotation speed limit of the engine of the hybrid vehicle. When the engine rotation speed required to provide the drive power demand is less than the lower rotation speed limit, contrary to conventional hybrid vehicles that drive the engine at a low rotation speed or even stop the engine, embodiments of the present invention **drive[s] the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit**.

For example, one embodiment of the present invention relates to a hybrid vehicle 20 that may control an engine 22 at a rotation speed not lower than a lower rotation speed limit Nemin. The lower rotation speed limit Nemin may be determined by a map as shown in Fig. 6. The engine 22 may also has an engine speed demand Nereq corresponding to engine power demand as shown in Fig. 4. Instead of letting engine speed demand Nereq to control the engine speed, like conventional hybrid vehicles, the control unit 70 controls the hybrid vehicle 20 **to drive the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit**. Particularly, as recited in dependent claims 2, 10 and 11, the control unit 70 is to “drive the internal combustion engine **at a higher rotation speed**

*between the set lower rotation speed limit and the set rotation speed demand for enhancing response to an abrupt increase in engine power demand, the enhancement being assured by attaining the engine power increase by a torque rise when needed.”*

With respect to Kuroda, this reference describes a hybrid vehicle with an engine E, an engine speed sensor S5, a clutch switch and an ECU 1. The ECU 1 uses the monitored engine speed and manipulation of the clutch switch to determine whether a driver of the vehicle intends to stop the vehicle and stops the engine accordingly. However, Kuroda does not describe a power demand or a lower rotation speed limit. Consequently, Kuroda also does not describe setting a power demand or setting a lower rotation speed limit. Thus, it does not describe *driv[ing] the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit* as required by the inventions of claims 1, 8 and 9.

Accordingly, lacking any teaching or suggestion of *setting a power demand, setting a lower rotation speed limit or driv[ing] the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit*, Kuroda fails to anticipate the inventions of claims 1, 8 and 9. “A claim is anticipated only if *each and every element* as set forth in the claim is found . . . in a single prior art reference.” See M.P.E.P. § 2131 (quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987)).

Also, as discussed in MPEP 2143.01, obviousness can *only* be established by combining or modifying the *teachings of the prior art* to produce the claimed invention where there is some *teaching, suggestion, or motivation* to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (discussing rationale underlying the motivation-suggestion-teaching *test* as a guard against using hindsight in an obviousness analysis).

Further, as discussed in *KSR Int’l Co. v. Teleflex, et al.*, No. 04-1350, (U.S. Apr. 30, 2007), it remains necessary to identify the reason why a person of ordinary skill in the art would have been prompted to modify Kuroda to include *a power demand setting module or a lower rotation speed limit setting module or a control module to drive the internal combustion engine at a rotation speed of not lower than the set lower rotation speed limit* in the manner as recited in the inventions of claims 1, 8 and 9. Obviousness cannot be sustained on mere conclusory statements.

Therefore, based on the foregoing reasons, the Applicant respectfully submits that claims 1, 8 and 9, as well as their dependent claims, are patentable over Kuroda.

### **III. Conclusion**

In view of the foregoing discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition. Favorable reconsideration and early issuance of a Notice of Allowance are therefore respectfully requested.

The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Date: September 24, 2009

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